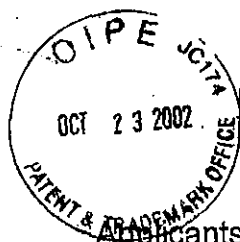


EXHIBIT K



13/A
P-4773-US
10/20/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: BEN-DAVID, Ilan et al. Examiner: Jimmy H. Nguyen
Serial No.: 09/710,895 Group Art Unit: 2673
Filed: November 14, 2000 Attorney Docket No.: P-4773-US
Title: DEVICE SYSTEM AND METHOD FOR ELECTRONIC TRUE
COLOR DISPLAY

AMENDMENT

RECEIVED

Assistant Commissioner for Patents
Washington, DC 20231

OCT 28 2002
Technology Center 2600

Sir:

In response to an Office Action mailed April 24, 2002, the time for reply to which has been extended to October 24, 2002 by the concurrent filing of a Petition for a Three-Months Extension of Time, please amend the above-identified application as follows:

IN THE SPECIFICATION

Please amend the specification as follows:

Please replace the paragraph beginning at page 1, line 6, with the following paragraph:

---This application claims priority from US Provisional Patent Application No. 60/209,771, filed June 7, 2000, entitled "A High Gamut Video Display", which is incorporated herein by reference in its entirety. --

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Attached hereto is a marked-up version of the changes made to the specification by the current amendment. The attached pages are captioned "Version With Markings to Show Changes Made".

IN THE CLAIMS

Please cancel claims 1-24 without prejudice to their re-entry at a later stage.

Please add the following new claims 25-44:

--25. (New) A device for displaying a color image comprising:

a light source which selectively produces light of at least four, independently selectable, primary colors; and

a controller which receives image data representing said color image in terms of said at least four primary colors and, based on said image data, selectively controls the path of light of said at least four primary colors to produce a light pattern corresponding to said color image.

26. (New) The device of claim 25 further comprising at least one optical element which projects said light pattern onto a viewing screen.

27. (New) The device of claim 25, wherein said light source comprises:

a polychromatic source; and

at least four independently selectable color filter elements, each color filter corresponding to one of said at least four primary colors, for

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filtering polychromatic light from said polychromatic source to produce the light of said at least four primary colors.

28. (New) The device of claim 27, wherein said light source further comprises:

a color wheel for holding said at least four color filters; and
a motor for rotating said color wheel.

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29. (New) The device of claim 25 wherein the controller comprises a spatial light modulator which selectively modulates the light of said at least four primary colors in accordance with said image data.

30. (New) The device according to claim 29, wherein said light source sequentially produces light of said at least four primary colors and wherein said spatial light modulator sequentially modulates the light of said at least four primary colors based on said color image data.

31. (New) The device of claim 29, where said spatial light modulator is selected from the group consisting of a binary modulation type and a continuous modulation type.

32. (New) The device of claim 31, wherein said spatial light modulator is selected from the group consisting of deformable micro-mirror device (DMD), Ferroelectric liquid crystal (FLC) device, quantum well modulator, and electro-optical modulator.

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33. (New) The device of claim 31, wherein said spatial light modulator is selected from the group consisting of liquid crystal device (LCD), electro-optical modulator and magneto-optical modulator.

34. (New) The device of claim 25, wherein said light source comprises a continuously variable neutral density filter for controlling the brightness of the light of said at least four primary colors.

35. (New) The device of claim 25, wherein said light source produces light of at least five independently selectable primary colors.

36. (New) The device of claim 35, wherein said light source produces light of at least six independently selectable primary colors.

37. (New) The device of claim 25, wherein said light source additionally produces white light affecting the brightness of said image.

38. (New) The device of claim 25 wherein said image data comprises digital image data.

39. (New) The device of claim 25 wherein said image data comprises analog image data.

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40. (New) The device of claim 25 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

41. (New) A system for displaying a color image comprising:

a light source which selectively produces light of at least four, independently selectable, primary colors;

a converter which converts three-primary-color input data representing said color image into converted image data representing said color image in terms of said at least four primary colors; and

a controller which selectively controls the path of light of said at least four primary colors based on said converted image data to produce a light pattern corresponding to said color image.

42. (New) A system according to claim 41 wherein said three-primary-color input data comprises related to red-green-blue (RGB).

43. (New) The system of claim 41 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

44. (New) A method for displaying a color image comprising:

selectively producing light of at least four, independently selectable, primary colors;

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converting three-primary-color input data representing said color image into converted image data representing said color image in terms of said at least four primary colors; and

selectively controlling the path of light of said at least four primary colors based on said converted image data to produce a light pattern corresponding to said color image.

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45. (New) A method system according to claim 44 wherein said three-primary-color input data comprises red-green-blue (RGB) input data.

46. (New) The method of claim 44 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

47. (New) A device for projecting a color image comprising:

a light source which sequentially produces light of at least four, independently selectable, primary colors, the light sources comprising a polychromatic source and at least four independently selectable color filters, each color filter corresponding to one of said at least four primary colors, for filtering polychromatic light from said polychromatic source to produce the light of said at least four primary colors;

a controller which receives image data representing said color image in terms of said at least four primary colors and, based on said image data, selectively controls the path of light of said at least four primary colors to produce a light pattern corresponding to said color

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image, said controller comprising a spatial light modulator which sequentially modulates the light of said at least four primary colors in accordance with said image data; and

at least one optical element which projects said light pattern.

48. (New) The device of claim 47 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.--

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "Version With Markings to Show Changes Made".

REMARKS

Applicants have carefully studied the outstanding Office Action. The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Status of Claims

Claims 25-48 are pending in the application. Claims 1-24 have been canceled without prejudice to their reentry at a later stage. New claims 25-48 have been added. It is respectfully submitted that no new matter has been added to the application.

Interview Summary

Applicants thank the Examiner for the courtesy of the Interview with applicants' representative at the USPTO on July 24, 2002. In the Interview, as

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summarized by the Interview Summary mailed July 25, 2002, the Examiner had agreed that Fig. 2 should not be labeled "Prior Art". Additionally, the Examiner had withdrawn the formal objections to canceled claims 5 and 17 and the rejection of canceled claim 3 under 35 U.S.C. 112. The Examiner has maintained the rejection of canceled claims 1-24 under 35 U.S.C. 102(e) or 103(a).

New Claims

Claims 25-48 have been added to more clearly define the subject matter claimed by the present application, and to correct potentially unclear language in the claims. Arguments to support the patentability of new claims 25-48, in view of the prior art cited by the Examiner are provided below. It is respectfully submitted that new claims 25-48 do not narrow the scope of the amended claims or create any prosecution history estoppel. Accordingly, these new claims are not subject to the complete bar against the use of the Doctrine of Equivalents as outlined in *Festo Corporation v. Shoketsu Kinsoku Kogyo Kabushiki Co., Ltd.* Furthermore, although arguments are provided below to support the patentability of the new claims in view of the prior art cited by the Examiner, and with reference to the Examiner's contentions, it is respectfully submitted that the new claims have not been entered as a direct response to the prior art rejections discussed below. Additionally, it is respectfully submitted that the new claims do not add any new matter to the application.

OBJECTIONS TO THE DRAWINGS

Required Corrections to the Drawings

Corrected Fig. 1 has been provided concurrently herewith. The new Fig. 1 includes the legend --Prior Art-- in accordance with MPEP § 608.02(g). Fig. 2 has not

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been changed because the content of Fig. 2 is not part of the prior art, as acknowledged by the Examiner in the Interview of July 24, 2002.

Objections to the Drawings Under 37 CFR 1.83(a)

The Examiner has objected to the drawings under 37 CFR 1.83(a), as not showing every feature of the invention specified in the claims. Specifically, the Examiner contends that the features “a plurality of monochromatic sources”, as recited in canceled claim 2, and “said viewing screen features a plurality of groups of pixels, each group of pixels including at least four pixels, each pixel corresponding to a primary color”, as recited in canceled claim 3, are not shown in any of the drawings. Applicants respectfully submit that these objections are moot in light of the cancellation of claims 2 and 3. It is further submitted that the objection to the drawings under 37 CFR 1.83(a) is not applicable to any of the newly added claims.

OBJECTIONS TO THE SPECIFICATION

The disclosure is objected to because of the following informalities. Page 1, line 7, “60/xxx,xxx” should be changed to --60/209,771--. The specification has been amended to replace the paragraph beginning at page 1, line 6, with a new paragraph replacing “60/xxx,xxx” with --60/209,771--. Accordingly, it is respectfully requested that the Examiner’s objection to the specification be withdrawn.

CLAIM OBJECTIONS

The Examiner objected to claims 5 and 12-17, now canceled, due to various informalities. Specifically, the Examiner contended that “further comprising” in canceled claim 5 should be changed to --wherein said controller comprises--, that “LCD” in line 2 of canceled claims 12, 13 and 16 should be changed to --liquid crystal device (LCD)--, that “6” in line 1 of canceled claim 14 should be changed to --7--, that “DMD, FLC,” in line 2 of canceled claim 15 should be changed to

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--deformable micro-mirror device (DMD), Ferroelectric liquid crystal (FLC)--, and that "said light source further comprises" in lines 1-2 of canceled claim 17 should be changed to --said at least four color filters--.

In the Interview of July 24, the Examiner had withdrawn the formal objections to canceled claims 5 and 17. As to claims 12-16, to the extent that the subject matter of these claims is reflected in any of the newly added claims, it is respectfully submitted that appropriate changes have been made in such new claims to overcome the Examiner's objections.

CLAIM REJECTIONS

Claim Rejections under 35 U.S.C. §112

Claims 3, 20 and 21, now canceled, were rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In the Interview of July 24, the Examiner had withdrawn the rejection of canceled claim 3 under 35 USC 112. As to canceled claims 20-21, to the extent that the subject matter of these claims is reflected in the newly added claims, it is respectfully submitted that the limitations of the new claims are properly supported by the specification. Specifically, new claims 38 and 39 recite the limitations that the image data of new claim 25 may include digital data (claim 38) or analog data (claim 39). It is respectfully submitted that these limitations are clearly supported by the specification, for example, on page 20, lines 14-16. It is further submitted that the use of either analog or digital data to represent color images would be apparent to a

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person of ordinary skill in the art. Therefore, applicants respectfully submit that claims 38 and 39 are patentable under 35 USC 112, first paragraph.

Claim Rejections under 35 U.S.C. §102

Canceled claims 1, 5, 18, 22, 23 were rejected under 35 U.S.C. §102(e) as being anticipated by Guerinot et al. (USPN: 6,147,720). In view of the cancellation of these claims, and the entry of new claims 25-48, the following remarks relate to the Examiner's rejections only to the extent that the subject matter of some of the new claims generally corresponds to subject matter of claims 1, 5, 18, 22 and 23 that may be relevant to the rejections. Specifically, the subject matter of new claim 25 relates partly to the subject matter of canceled claim 1, the subject matter of new claim 41 relates partly to the subject matter of canceled claim 22, the subject matter of new claim 44 relates partly to the subject matter of canceled claim 23.

Applicants respectfully submit that new claims 25, 41 and 44 are not anticipated by Guerinot et al., at least for the following reasons. With respect to claim 25, 41 and 44, applicants submit that Guerinot et al. does not teach the claimed "...light source which selectively produces light of at least four, independently selectable, primary colors..." (claim 25 and 41) and the claimed "...selectively producing light of at least four, independently selectable, primary colors..." (claim 44).

The system described in Guerinot et al. produces an image made up of three primary colors, namely, red, green and blue (RGB) or, in certain applications, their complementary equivalents, namely, cyan, magenta and yellow (CMY). Optionally in Guerinot et al., the three primary colors may be produced by either transmission through RGB elements or by reflection from CMY elements. Therefore, it is

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respectfully submitted that there is no teaching in Guerinot et al. of producing a displayed image of more than three, independently selectable, primary colors, as claimed by new independent claims 25, 41, 44 and 48.

Furthermore, the transmission spectra of the CMY elements of Guerinot et al. are exactly complementary to those of the RGB elements, as clearly described in Guerinot et al., for example, at column 5, lines 65-67. Such complementary colors are clearly inter-dependent, i.e., selection of a red element determines the selection of an exact-complementary cyan element, selection of a green element determines the selection of an exact-complementary magenta element, and selection of a blue element determines the selection of an exact-complementary yellow element. Therefore, even if the Examiner believes that Guerinot et al. teaches displaying an image using more than three primary colors, still Guerinot et al. clearly does not teach a light source that produces at least four, independently selectable, primary colors, as explicitly claimed by independent claims 25, 41 and 44. This feature of allowing independent selection of at least four primary colors is clearly supported by examples in the specification. For example, Fig. 5B illustrates exemplary selection of transmission spectra for six primary-color filters, which clearly cannot be grouped in three pairs of exact-complementary colors. It is respectfully submitted that such flexibility in selecting more than three primary colors enables improved control of the color gamut produced by devices in accordance with the present invention. Such control is not possible, nor desired, by the system of Guerinot et al.

Additionally, applicants respectfully assert that Guerinot et al. does not teach, suggest or imply receiving image data in terms of the at least four independently selectable primary colors and, based on the image data, controlling the path of light of the at least four primary colors, as claimed by independent claims 25, 41 and 44.

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The teachings of Guerinot et al. are not sufficient to enable providing image data in terms of at least four, independently selectable, primary colors. Image data of the at least four independently selectable primary colors may be provided, for example, by non-obvious conversion of standard three-primary-color video data, as disclosed in detail in the specification of the present invention. Guerinot et al. does not disclose any reasonable method of providing image data of at least four primary colors, in general, and at least four independently selectable primary colors, in particular. Further, image data of at least four primary colors was not otherwise known in the art, at the time of filing of the present application, nor was there a known method of converting conventional three-primary-color image data into image data in terms of at least four primary colors.

In view of the above, it is respectfully submitted that new claims 25, 41 and 44 are not anticipated by Guerinot et al. Further, it is submitted that claims 25, 41 and 44 are patentable over Guerinot et al., as discussed in more detail below.

Claim Rejections under 35 U.S.C. §103

Canceled claims 20 and 21 were rejected under 35 USC 103(a) as being unpatentable over Guerinot et al. as applied to claim 1 above. Canceled claims 2, 4, 6-8, 14-16 and 19 were rejected under 35 USC 103(a) as being unpatentable over Guerinot et al. as applied to canceled claims 1 and 5 above and further in view of Pettit (US Patent 6,256,073). Canceled claim 3 was rejected under 35 USC 103(a) as being unpatentable over Guerinot et al. in view of Pettit and further in view of Sato et al. (USPN 5,042,921). Canceled claims 9-13 were rejected under 35 USC 103(a) as being unpatentable over Guerinot et al. in view of Pettit and further in view of Morgan et al. (USPN 6,324,006 B1). Canceled claim 17 was rejected under 35 USC

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103(a) as being unpatentable over Guerinot et al. in view of Pettit and further in view of Cohen et al. (USPN 3,699,244). Canceled claim 24 was rejected under 35 USC 103(a) as being unpatentable over Guerinot et al. in view of Pettit and further in view of Cohen et al.

As explained above, the display device, system and method of independent claims 25, 41 and 44, respectively, all include the limitation of producing four, independently selectable, primary colors, as well as receiving image data in terms of the at least four primary colors and, based on the image data, controlling the path of light of the at least four primary colors. These limitations are also included in new independent claim 47. As discussed above, the images in Guerinot et al. are not produced from four, independently selectable, primary colors. It is respectfully submitted that Guerinot et al. teaches away from displaying images using at least four, independently selectable, primary colors, because the system of Guerinot et al. is not concerned with improving the richness of color in the displayed image. Rather, at most, Guerinot et al. teaches utilizing sets of complementary color elements in combination with two light sources to enhance image brightness.

As discussed above, the devices, system and method of new independent claims 25, 41, 44 and 47 further recite, in paraphrase, receiving image data in terms of the at least four primary colors and, based on the image data, selectively controlling the path of light of the at least four primary colors to produce a light pattern corresponding to the color image. Thus, independent claims 25, 41, 44 and 47 clearly require that light of all (at least) four primary colors, which are independently selectable, be used in producing the image to be displayed. This enables, by proper combination of the at least four primary colors, to reproduce a color gamut richer than that of a three-primary-color display. There is no teaching or

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suggestion in Guerinot et al. of such a combination of more than three, independently selectable, primary colors in the displayed image, e.g., to enrich the color of the image or for any other purpose.

Additionally, as discussed above, Guerinot et al. does not teach, suggest or imply receiving image data in terms of at least four, independently selectable, primary colors. Providing image data of the at least four independently selectable primary colors by conversion of standard three-primary-color video data, as disclosed in detail in the specification of the present application, would not have been obvious to a person of ordinary skill in the art in view of the teachings of Guerinot et al., because: (a) Guerinot et al. does not disclose any reasonable method of providing such image data; and (b) image data of more than three primary colors, or conversion of known image formats into image data in terms of more than three primary colors, was not otherwise known in the art.

In view of the above, it is respectfully submitted that new independent claims 25, 41, 44 and 47 are patentable over Guerinot et al. It is further submitted that independent claims 25, 41, 44 and 47 are patentable over any combination Guerinot et al. with any of the other references cited by the Examiner.

New claims 26-40, 42, 43, 45, 46 and 48, which have not been discussed in detail above, are all dependent, directly or indirectly, from independent claims 25, 41, 44 and 47. Therefore, each of 26-40, 42, 43, 45, 46 and 48 is patentable over the prior art at least by virtue of the patentability of the independent claim upon which it depends.

CONCLUSION

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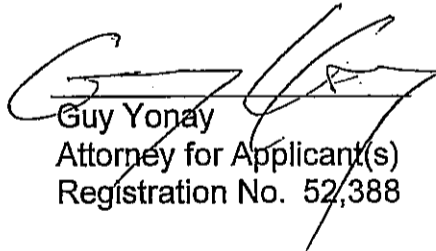
In view of the foregoing amendments and remarks, the pending claims 1-24 are deemed to be allowable. Their favorable consideration and allowance is respectfully requested.

Applicants note the Examiner's citation of prior art to complete the record.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Please charge any additional fees associated with this paper to Deposit Account No. 05-0649.

Respectfully submitted,


Guy Yonay
Attorney for Applicant(s)
Registration No. 52,388

Dated: October 23, 2002

Eitan, Pearl, Latzer & Cohen-Zedek
One Crystal Park, Suite 210, 2011 Crystal Drive
Arlington, VA, USA 22202-3709
Telephone: (703) 486-0600
Fax: (703) 486-0800

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VERSION WITH MARKINGS TO SHOW CHANGES MADE
IN THE SPECIFICATION

Page 1, lines 6-8:

~~This Application claims priority from US Provisional Application No. 60/xxx,xxx, filed on June 7, 2000, entitled "A High Gamut Video Display", which is hereby incorporated by reference as if fully set forth herein.~~

This application claims priority from US Provisional Patent Application No. 60/209,771, filed June 7, 2000, entitled "A High Gamut Video Display", which is incorporated herein by reference in its entirety.

IN THE CLAIMS

~~1. A device for displaying image data of a plurality of colors, the device comprising:~~

- ~~(i) a light source for producing light having at least four primary colors;~~
- ~~(ii) a controller for determining a combination of at least one of said at least four primary colors according to the image data for production by said light source; and~~
- ~~(iii) a viewing screen for displaying the image data according to said combination from said controller.~~

~~2. The device of claim 1, wherein said light source features a plurality of monochromatic sources, each monochromatic source producing light of one of said at least four primary colors.~~

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~~3. The device of claim 2, wherein said viewing screen features a plurality of groups of pixels, each group of pixels including at least four pixels, each pixel corresponding to a primary color.~~

~~4. The device of claim 2, wherein said monochromatic light source is a laser.~~

~~5. The device of claim 1, further comprising:~~

~~— (d) a projector for projecting light of said at least four primary colors onto said viewing screen according to said combination.~~

~~6. The device of claim 5, wherein said light source comprises:~~

~~(i) a polychromatic source; and~~

~~(ii) at least four color filters, each color filter corresponding to a primary color for filtering polychromatic light from said polychromatic source to produce light of said at least four primary colors.~~

~~7. The device of claim 6, wherein said projector further comprises a spatial light modulator for determining a path of light of each primary color.~~

~~8. The device of claim 7, wherein said projector spatially alters a path of light of each primary color for projection onto said viewing screen.~~

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~~9. The device of claim 7, wherein said projector determines projection of light of each primary color according to a temporal sequence.~~

~~10. The device of claim 9, wherein said light source further comprises:~~

~~—— (iii) a color wheel for holding said color filters; and~~

~~—— (iv) a motor for rotating said color wheel.~~

~~11. The device of claim 10, where said spatial light modulator is selected from the group consisting of a binary modulation type and a continuous modulation type.~~

~~12. The device of claim 11, wherein said spatial light modulator is selected from the group consisting of DMD, FLC, quantum well modulator and electro-optical modulator.~~

~~13. The device of claim 11, wherein said spatial light modulator is selected from the group consisting of LCD, electro-optical modulator and magneto-optical modulator.~~

~~14. The device of claim 6, where said spatial light modulator is selected from the group consisting of a binary modulation type and a continuous modulation type.~~

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~~15. The device of claim 14, wherein said spatial light modulator is selected from the group consisting of DMD, FLC, quantum well modulator and electro-optical modulator.~~

~~16. The device of claim 14, wherein said spatial light modulator is selected from the group consisting of LCD, electro-optical modulator and magneto-optical modulator.~~

~~17. The device of claim 6, wherein said light source further comprises a continuously variable neutral density filter for controlling brightness of said light of said at least four primary colors.~~

~~18. The device of claim 1, wherein said light source produces light of six primary colors.~~

~~19. The device of claim 1, wherein said light source additionally produces white light for controlling brightness of said light at least four primary colors.~~

~~20. The device of claim 1, wherein said combination from said controller is digital image data.~~

~~21. The device of claim 1, wherein said combination from said controller is an analog image signal.~~

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~~22. A system for displaying image data of a plurality of colors, the system comprising:~~

~~—— (a) a light source for producing light having at least four primary colors;~~

~~—— (b) a converter for converting the image data to a combination of at least one of said at least four primary colors to form a map;~~

~~—— (c) a controller for controlling a production of said combination from said light source, wherein said controller is separate from said light source; and~~

~~—— (d) a viewing screen for displaying the image data from said combination from said light source as controlled by said controller.~~

~~23. In a device for displaying image data of a plurality of colors, the device comprising a light source for producing light having at least four primary colors and a viewing screen for displaying the image, the light being projected onto the viewing screen, a method for creating the image for displaying, the method comprising the steps of:~~

~~—— (a) producing light by the light source of at least four primary colors;~~

~~—— (b) determining a path for light of each primary color according to the image data; and~~

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~~_____ (c) _____ projecting said light of each primary color according to said path onto the viewing screen to form the image.~~

24. ~~A device for displaying image data of a plurality of colors, the device comprising:~~

~~(a) _____ a light source for producing light having at least four primary colors, said light source comprising:~~

~~_____ (i) _____ a polychromatic source;~~

~~_____ (ii) _____ at least four color filters, each color filter corresponding to a primary color for filtering polychromatic light from said polychromatic source to produce light of said at least four primary colors;~~

~~_____ (iii) _____ a continuously variable neutral density filter;~~

~~_____ (iv) _____ a color wheel for holding said color filters and said continuously variable neutral density filter; and~~

~~_____ (v) _____ a motor for rotating said color wheel;~~

~~(b) _____ a controller for determining a combination of at least one of said at least four primary colors according to the image data for production by said light source, such that said controller is separate from said light source;~~

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~~(e) a viewing screen for displaying the image data according to said combination from said controller; and~~

~~(d) a projector for projecting light of said at least four primary colors onto said viewing screen according to said combination, further comprising a spatial light modulator for determining a path of light of each color, for determining projection of light of each primary color according to a temporal sequence.~~

25. A device for displaying a color image comprising:

a light source which selectively produces light of at least four, independently selectable, primary colors; and

a controller which receives image data representing said color image in terms of said at least four primary colors and, based on said image data, selectively controls the path of light of said at least four primary colors to produce a light pattern corresponding to said color image.

26. The device of claim 25 further comprising at least one optical element which projects said light pattern onto a viewing screen.

27. The device of claim 25, wherein said light source comprises:

a polychromatic source; and

at least four independently selectable color filters, each color filter corresponding to one of said at least four primary colors, for filtering

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polychromatic light from said polychromatic source to produce the light of said at least four primary colors.

28. The device of claim 27, wherein said light source further comprises:

a color wheel for holding said at least four color filters; and

a motor for rotating said color wheel.

29. The device of claim 25 wherein the controller comprises a spatial light modulator which selectively modulates the light of said at least four primary colors in accordance with said image data.

30. The device according to claim 29, wherein said light source sequentially produces light of said at least four primary colors and wherein said spatial light modulator sequentially modulates the light of said at least four primary colors based on said color image data.

31. The device of claim 29, where said spatial light modulator is selected from the group consisting of a binary modulation type and a continuous modulation type.

32. The device of claim 31, wherein said spatial light modulator is selected from the group consisting of deformable micro-mirror device (DMD), Ferroelectric liquid crystal (FLC) device, quantum well modulator, and electro-optical modulator.

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33. The device of claim 31, wherein said spatial light modulator is selected from the group consisting of liquid crystal device (LCD), electro-optical modulator and magneto-optical modulator.

34. The device of claim 25, wherein said light source comprises a continuously variable neutral density filter for controlling the brightness of the light of said at least four primary colors.

35. The device of claim 25, wherein said light source produces light of at least five independently selectable primary colors.

36. The device of claim 35, wherein said light source produces light of at least six independently selectable primary colors.

37. The device of claim 25, wherein said light source additionally produces white light affecting the brightness of said image.

38. The device of claim 25 wherein said image data comprises digital image data.

39. The device of claim 25 wherein said image data comprises analog image data.

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40. The device of claim 25 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

41. A system for displaying a color image comprising:

a light source which selectively produces light of at least four, independently selectable, primary colors;

a converter which converts three-primary-color input data representing said color image into converted image data representing said color image in terms of said at least four primary colors; and

a controller which selectively controls the path of light of said at least four primary colors based on said converted image data to produce a light pattern corresponding to said color image.

42. A system according to claim 41 wherein said three-primary-color input data comprises red-green-blue (RGB) input data.

43. The system of claim 41 wherein the wavelength ranges of said at least four primary colors are selected to produce a desired color gamut for said color image.

44. A method for displaying a color image comprising:

selectively producing light of at least four, independently selectable, primary colors;

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converting three-primary-color input data representing said color image
into converted image data representing said color image in terms of said at
least four primary colors; and

selectively controlling the path of light of said at least four primary
colors based on said converted image data to produce a light pattern
corresponding to said color image.

45. A method according to claim 44 wherein said three-primary-color input
data comprises red-green-blue (RGB) input data.

46. The method of claim 44 wherein the wavelength ranges of said at least
four primary colors are selected to produce a desired color gamut for said
color image.

47. A device for projecting a color image comprising:

a light source which sequentially produces light of at least four,
independently selectable, primary colors, the light sources comprising and a
polychromatic source at least four independently selectable color filters, each
color filter corresponding to one of said at least four primary colors, for filtering
polychromatic light from said polychromatic source to produce the light of said
at least four primary colors;

a controller which receives image data representing said color image in
terms of said at least four primary colors and, based on said image data,
selectively controls the path of light of said at least four primary colors to
produce a light pattern corresponding to said color image, said controller

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comprising a spatial light modulator which sequentially modulates the light of
said at least four primary colors in accordance with said image data; and
at least one optical element which projects said light pattern.

48. The device of claim 47 wherein the wavelength ranges of said at least
four primary colors are selected to produce a desired color gamut for said
color image.